

Final Reflection Paper
Cyber Security Ethics (CybE 234)
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In this reflection, I'll discuss my most important moral and ethical beliefs, followed by how those morals were impacted by this course by discussing my beliefs prior to and after CybE 234. Finally, I'll speculate on which soft skills will be most crucial for my career, and where I could struggle in developing those skills.

Important factors guiding ethical behavior

When considering factors that will guide my ethical decision-making, one factor trumps all: human life. If there's an action I can take to prevent the loss of life, I'll take it. And if there's an action that makes me feel as if I'm costing human life, I won't take it. Seems simple and logical, but it can be very subjective and emotional; even though the choice to work at a firm like Lockheed Martin won't likely have a strong effect on who they sell weapons to and what those buyers do with those weapons, I'll still feel ethically complicit in the destruction their weapons enable.

Next on the totem pole is a strong belief that human time and energy is precious. If an action of mine saves the time and energy of myself and others, I'll take it. For instance, while it might be expensive to get a quality network vulnerability scanner, and my coworkers and I could manually probe the network for known vulnerabilities, the time and energy we waste to save a few bucks simply isn't worth the trade.

Money, capital, and property hold a strange place in my ethical code. Losing or gaining cash, in some sense, is equivalent to losing and gaining time and energy. Here's the thing, though: if you're poor, money is a lot more impactful and represents a ton more value than if you're rich. Likewise, the money of an average-joe is a lot more meaningful to me than the cash of a CEO. I'd rather work a ridiculous amount of overtime on a breach that directly affected the average American, rather than one that directly affects a big-wig businessman.

I also strongly value trust. I absolutely adore the people I can definitively call friends, and despise people who deceive and talk behind others' backs, especially when the acts are out of a position of authority or malice. I'm inclined to act kindly towards the honest, and maybe a little too maliciously against the deceitful. This... might make working as someone like a pentester emotionally complicated. Separating my morals from my job in a profession where I have to lie and con perfectly well-meaning people might be difficult.

While these factors don't change between the time I entered this course and the time I left it, the value calls I make and how I weigh each of these factors have changed. Whose time, energy, money, and trust are most important to protect and exchange have shifted in my mind.

My beliefs prior to CybE 234

Most of my experience and perception of cybersecurity before coming to class was through popular media, blog posts, news articles, and from other sources that aren't written by infosec professionals. For instance, all of the news I'd seen of Snowden involved interviews with him. Regardless of what you think of his actions, he's a very charming individual, and combining that with his status as a martyr for privacy, fighting against a kind of betrayal of trust between the government and its citizens, I instantly thought of him as a hero. A similar "good for the people" cause is open-source code and intelligence. Open-source was simply good, nothing more complex than that.

Another belief I held prior to CybE 234 is that I wouldn't have to do much legal work whatsoever. I only foresaw my time in infosec as finding vulnerabilities, suggesting remediations, and that's about it. The lawyers handle the law—I don't need to worry about all these statutes and regulations! I just need to make sure I've got my access controls in place.

I also hadn't seen the value in challenging my superiors when I believed they were clearly making the wrong decision. For instance, if they didn't want to invest in backup servers for important data, I'm not going to put that much effort into convincing them otherwise; that's not my job. If they want to take on the risk, then so be it— they're taking on the risk, not me.

My beliefs after CybE 234

The first thing for me to change after taking the course is my outlook on whistleblowing and open-source software. My views have largely been gung-ho: if you see something wrong with your company, run to the press immediately! I had no idea that there were procedures in place to address whistleblowing in companies and in government. I also hadn't realized that there was some real damage that was done in exposing tons of NSA documents, as was discussed in class, when terror organizations and organized crime got their hands on the methods the NSA used to keep an eye on them. So while I still side with people like Snowden, I'm not inclined to call him a hero.

A similar process occurred with my view of open-source tech. While most of it is incredibly useful and highly educational, helping people break into an opaque technical field with the aid of open-source tools, there's also a darker side. For one, zero-days released to the public can run rampant while professionals or the community haven't countered the exploit. Just think of Eternal Blue, the leaked NSA exploit that became dangerous when it was widely published by the hacking group that stole it. Google's Project Zero is in a gray area; while outing vulnerabilities they find after 90 days to the public might get asses into gear, it could also leave unequipped organizations without the resources to respond to an incident utterly exposed.

My perception of cyber-people's role in understanding the law has also changed. I'm now aware that we have to worry about plenty of laws, and that if we fail to properly address some, we'll get screwed over. Remember the two fellows working for Coalfire Labs who got pinned for a miscommunication? That's how easy it could be to get screwed over for not verifying the legal standings of all parties involved. The same could happen if I were a blue-teamer and I failed to get a superior's risky decision on security written down somewhere. Again, I need to look out for where I could get blamed for a fiasco, and shift that blame appropriately. I've learned that I can't just assume that my actions (or inactions) will be properly assessed legally by my employers. I must be vigilant.

A moral conviction I've held onto throughout the course is that I place my needs above the needs of others. As this course progressed, the situations in which I'd place myself before others, and the way I'd go about doing that before and after this class, have changed. For instance, if I read something abhorrent in an email, maybe a threat or some type of coercion, even if I'd get in hot water for reporting it, the risk to the victim party is so great that it would be unthinkable not to take the hit and suffer more minor consequences.

Essential soft skills and areas of struggle

Soft skills are crucial to develop as I'm entering the workforce. I'm not going to have an issue picking up the necessary skills to actually work a job— I've got a strong faith in myself that I can learn just about anything under the Sun. What is concerning is workplace dynamics, climbing the ladder, and negotiating with my coworkers and my superiors. Out of the soft skills we mentioned in lecture, attentiveness, charm, negotiation, cooperation, and maintaining a work-life balance are the skills I'm most concerned about.

Being socially attentive is a personal weak spot for me. For as long as I can remember, tapping out of social situations 5 minutes in and spacing out has been an awful habit of mine. There's a chance of this effect snowballing, too: if I'm already tired, and socializing with people I don't consider real-good friends tires me out, then I'm going to completely shut down after too long. I'll burn myself out real fast. When it gets bad, I hear about half of what anyone else is saying, meaning I can't really contribute meaningfully to any conversation. And who wants to talk to someone who's clearly not paying attention to what they're saying? Clearly, this needs some work. So what's the cure? By coming to the social floor prepared: getting a fat eight hours of sleep, eating properly, working out, the works. There's no quick fix; I simply need the proper amount of energy to function. Like nearly all conflicts, the battle is won before the bell rings.

Charm is another important skill that goes hand-in-hand with attentiveness. When I'm active and awake, I find that I'm far more amicable, and my attempts at humor land far more frequently. Turns out

that a big part of comedy, and being interesting in general, is witty, quick, and unexpected reactions and observations. And if I'm down in the dumps and can hardly pay attention to the people around me, I'm not going to have the capacity to form interesting thoughts and expressions. And I don't put such an emphasis on charm because I want to be funny; being fun to be around takes the edge off social situations, and makes it a lot less energy-draining to be around people. When people let their guards down, they can make the most of their energy, which lets them make the most of their time, a resource we should be using as efficiently as possible.

From the apparent benefits of being light-hearted and amicable, I know exactly who I don't want to be: the person whose defining feature is being a major drag. I avoid people who are an energy drain on me— negative nancies. I've been this person in the past, and it's not a surprise that it was when I was at my most isolated. I've fallen into pessimism, but just like spacing out, I can ward off the compulsion by treating myself right. I should also rely on others; it's hard to be miserable with funny buddies to lean on. Keeping those people close— and the chronic pessimists as far away as possible— is the key.

Persuasion and negotiation are especially pertinent to my future— securing funding for beefy tools and systems seems like half of what we talked about in the latter half of class. A good rule of thumb is to try not to offend. If I find myself critiquing, there's a good chance I'm doing it wrong, and the other party will perceive hostility, not someone who believes they have their best intent in mind. Hell, talk so that they come to your conclusions, as if they're having the idea themselves.

Now, being kind and fair in a negotiation is one thing, but being a suck-up is another. I don't want to be an ass-kisser, and I don't want to be walked all over. At the same time, I don't want to be bossy or aggravating or annoying, either. These are dynamics that are already difficult to balance within a team of peers, but balancing them in negotiations with an authority figure is even tougher. The dynamic shifts between each one, and once it's off, it's painfully clear. This plays even further into attentiveness; if I don't pay attention to my mannerisms and the mood of my boss, I'll miss important social cues.

Cooperation has a lot of moving elements I hadn't thought about before we discussed it in class. First off, I tend to be the lead on most projects I'm a part of, which will definitely change once I find

myself in the industry. I'm going to have to accept that my ideas are going to get vetoed far more often than they are now; I'm not going to be the boss. Suggest, don't demand. Maintaining a good mood in spite of this is a strong skill for building trust and respect among my peers.

More on cooperation, compromise is also important. This isn't just compromising my ideas, but also knowing when to slow down. I tend to go full-bore on projects I work on, and that can be very dangerous. I need to learn to pace myself and communicate my work with my peers, lest I leave my project-mates behind. A strategy that could alleviate this is to have frequent informal meetings with them, talk about our progress, and our opinions on the project. I'll ask directly if they feel like they have enough sway in the process, and what could be different about the group dynamic. This same strategy goes for when I'm being left in the dirt, too.

We've discussed at length how tough it can be to nail down a proper work-life balance as a cybersecurity professional. The field moves fast, and there are as many facets of specialization as there are different computer systems. It's tempting for me to try to learn about every single little thing the field offers, but I've got to remember that I just don't have the time—nobody has that kind of time. It's impossible. Regardless, even if I don't put any time into research outside of work, it's likely I'll be on call to some degree. If I'm going to compromise my personal life for work, I've got to be sure that I'm paid appropriately.

Here's an anecdote from my life that shows just how awful my work-life balancing can be. In my freshman design course, my group was making a Galaga rip-off. I could have let that project go the moment I was done with the class. Move on. Find more work, more diverse experiences. But I refused; I kept working on that project into the summer, into the fall, giving a complete makeover to a game that was never going to see the light of day outside that project. I was comfortable working on that project, and I wanted to stay in the realm of that comforting work, where I could continue feeling nice progress, putting energy into something I really shouldn't have. I became obsessed with my project work, and while I grew a bit from that experience, becoming a better object-oriented programmer, I could have grown much faster by starting another project altogether. I'm afraid this obsessiveness might carry on into my

career. If I'm going to maintain a good work-life balance, I need to learn to stop obsessing over professional projects. Go touch grass. Stop distracting myself from the other good things in life that I need to learn to appreciate.

Conclusion

I value human life, time and energy, trust, and property. It's a simple baseline, but this framework informs most of the ethical decisions I make. The way I've interpreted that moral code has changed as I've been exposed to the stories and realities of the government and corporate sectors. While being good at my job will certainly make it easier to enforce my ethics in this environment, soft skills are the real means to those ends. I can't influence the workplace alone; I'll need to cooperate and negotiate with others in order to make a definitive change.